

device.

4. (Amended) A heat radiating device according to claim 1, wherein a surface of the heat radiating substrate opposite to the surface over which the metal film is disposed is coupled to an external device.

5. (Amended) A semiconductor module comprising:  
a semiconductor device including a semiconductor element, pads coupled electrically to bonding electrodes of the semiconductor element, and an island disposed on a back surface of the semiconductor element, said semiconductor device integrally sealed with resin except where the island and the pads are disposed; and

a heat radiating substrate containing Al as a major component; and  
a first metal film containing Cu, Ag, Sn, Ni, or Au and disposed on the heat radiating substrate,

wherein the first metal film and the island are coupled by brazing solder, conductive paste, or adhering material having thermal conductivity.

6. (Amended) A semiconductor module according to claim 5, wherein a second metal film containing Cu as a major component is disposed between the first metal film and the island.

7. A semiconductor module according to claim 6, wherein the island and the metal plate are formed integrally by the etching process.

8. A semiconductor module according to claim 5, wherein a back surface of the semiconductor element is adhered to the metal plate.

9. A semiconductor module according to claim 5, wherein back surfaces of the pads and a back surface of the island are arranged substantially on a same planar surface.

10. A semiconductor module according to claim 8, wherein back surfaces of the pads and a back surface of the semiconductor element are arranged substantially on a same planar

surface.

11. (Amended) A semiconductor module according to claim 9 or claim 10, wherein a back surface of the insulating resin projects beyond back surfaces of the pads.

12. (Amended) A semiconductor module according to claim 11, wherein side surfaces of the pads and the back surface of the insulating resin extending from the side surfaces of the pads draw a same curved surface.

13. (Amended) A semiconductor module according to claim 12, further comprising: a flexible sheet having conductive patterns coupled electrically to the semiconductor device, said sheet provided between the semiconductor device and the radiation substrate; and

an opening provided in the flexible sheet to [respond] correspond to the island.

14. (Amended) A semiconductor module comprising:

a semiconductor device including a semiconductor element, pads coupled electrically to bonding electrodes of the semiconductor element, and a radiating electrode disposed on a back surface of the semiconductor element, said semiconductor element integrally sealed with resin except where the radiating electrode and the pads are disposed;

a heat radiating substrate containing Al as a major component; and

a first metal film containing Cu, Ag, Sn, Ni, or Au disposed on the heat radiating substrate,

wherein the first metal film and the radiating electrode are coupled by brazing solder, conductive paste, or adhering material having thermal conductivity.

15. (Amended) A semiconductor module according to claim 14, further comprising:

a second metal film containing Cu as a major component and disposed between the first metal film and the radiating electrode.

16. (Amended) A semiconductor module according to claim 14, wherein the radiating electrode and the metal plate are formed integrally by etching.

17. (Amended) A semiconductor module according to claim 14, wherein back surfaces of the pads and the back surface of the radiation electrode are arranged substantially on a same planar surface.

18. (Amended) A semiconductor module according to claim 17, wherein a back surface of the insulating resin projects beyond the back surfaces of the pads.

19. (Amended) A semiconductor module according to claim 18, wherein side surfaces of the pads and the back surface of the insulating resin extending from the side surfaces of the pads draw a same curved surface.

20. (Amended) A semiconductor module according to claim 19, further comprising:

a flexible sheet having conductive patterns coupled electrically to the semiconductor device, said flexible sheet provided between the semiconductor device and the heat radiating substrate; and

an opening provided in the flexible sheet to correspond to the radiating electrode.

21. (Amended) A semiconductor module comprising:

a semiconductor device including a semiconductor element, leads coupled electrically to bonding electrodes of the semiconductor element, and an island whose back surface is disposed on a same surface level as a back surface of the leads; and

a heat radiating substrate containing Al as a major component; and

a first metal film containing Cu, Ag, Sn, Ni, or Au disposed on the heat radiating substrate,

wherein the first metal film and the island are coupled by brazing solder, conductive paste, or adhering material having thermal conductivity.

B2  
Cont. C1

B2  
10/1/01  
C1  
22. (Amended) A semiconductor module according to claim 21, further comprising:  
a second metal film containing Cu as a major component, said second metal film  
disposed between the first metal film and the island.

23. (Amended) A semiconductor module according to claim 22, further comprising:  
a flexible sheet having conductive patterns coupled electrically to the semiconductor  
device, said flexible sheet provided between the semiconductor device and the heat radiating  
substrate, and  
an opening provided in the flexible sheet to correspond to the island.

24. A semiconductor module according to claim 13, claim 20 or claim 23, wherein the  
semiconductor device is a read/write amplifier IC for a hard disk.

B3  
C1  
25. (Amended) A semiconductor module according to claim 13, claim 20 or claim 23,  
wherein the semiconductor device couples electrically to an external device through the heat  
radiating substrate. --

Please add claims 32 to 34.

B4  
C1  
-- 32. (New) A heat radiating device comprising:  
a heat radiating substrate containing Al as a major component; and  
a metal film containing Cu, Ag, Sn, Ni, or Au disposed on the substrate,  
wherein the substrate is attached to a semiconductor device provided in a precision  
electronic equipment having at least a driving portion or a sliding portion.

33. (New) A heat radiating device according to claim 32, wherein the metal film consists  
of a plating film.

Applicant : N. Sakamoto et al.  
Serial No. : 09/810,101  
Filed : March 16, 2001  
Page : 6

Attorney's Docket No.: 10417-058001 / F51-  
129350M/KIK

*Ref C/  
concl'd*

34. (New) A heat radiating device according to claim 32, wherein the metal film is  
configured to contact a metal body provided on a back surface of the semiconductor device.--

---